

# THE BIOLOGY OF BELIEF

## Parents as Genetic Engineers

*Recent research shows that children are influenced subconsciously by their parents even before birth, and that conscious parenting can produce smarter, healthier and happier babies.*

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Power of Consciousness, Matter and  
Miracles*

### CONSCIOUS PARENTING

No doubt you've heard the seductive argument that once parents bestow their genes on their children, they take a back seat in their children's lives; parents need only refrain from abusing their children, feed and clothe them, and then wait to see where their preprogrammed genes lead them. This notion allows parents to continue with their "pre-kids lives": they can simply drop their children off at daycare and with babysitters. It's an appealing idea for busy and/or lazy parents.

It's also appealing for parents who, like me, have biological children with radically different personalities. I used to think that my daughters are different because they inherited different sets of genes from the moment of conception—a random selection process in which their mother and I had no part. After all, I thought, they grew up in the same environment (nurture), so the reason for their differences had to be nature (genes).

The reality, I know now, is very different. Frontier science is confirming what mothers and enlightened fathers have known forever: that parents *do* matter—despite best-selling books that try to convince them otherwise. To quote Dr Thomas Verny, a pioneer in the field of prenatal and perinatal psychiatry: "Findings in the peer-reviewed literature over the course of decades establish beyond any doubt that parents have overwhelming influence on the mental and physical attributes of the children they raise." (Verny and Weintraub, 2002)

And that influence starts, says Verny, not after children are born but *before* children are born. When Verny first posited the notion that the influence of parents extends even to the womb, in his landmark book *The Secret Life of the Unborn Child*, the scientific evidence was preliminary and the "experts" sceptical. (Verny, 1981) Because scientists used to think that the human brain did not become functional until after birth, it was assumed that foetuses and infants had no memory and felt no pain. After all, noted Freud—who coined the term "infantile amnesia"—most people do not remember anything that happened to them before they were three or four years old.

However, experimental psychologists and neuroscientists are demolishing the myth that infants cannot remember—or, for that matter, learn—and along with it the notion that parents are simply spectators in the unfolding of their children's lives. The foetal and infant nervous system has vast sensory and learning capabilities and a kind of memory that neuroscientists call "implicit memory".

Another pioneer in prenatal and perinatal psychology, David Chamberlain writes in his book *The Mind of Your Newborn Baby*: "The truth is, much of what we have traditionally believed about babies is false. They are not simple beings but complex and ageless—small creatures with unexpectedly large thoughts." (Chamberlain, 1988)

These complex, small creatures have a pre-birth life in the womb that profoundly influences their long-term health and behaviour: "The quality of life in the womb, our temporary home before we were born, programs our susceptibility to coronary artery disease, stroke, diabetes, obesity and a multitude of other conditions in later life," writes Dr Peter W. Nathanielsz in *Life in the Womb: The Origin of Health and Disease*. (Nathanielsz, 1999) Recently, an even wider range of adult-related chronic disorders, including osteoporosis, mood disorders and psychoses, has been intimately linked to pre- and perinatal developmental influences. (Gluckman and Hanson, 2004)

Recognising the role that the prenatal environment plays in creating disease forces a reconsideration of genetic determinism. Nathanielsz writes: "There is mounting evidence that programming of lifetime health by the conditions in the womb is equally, if not more,

important than our genes in determining how we perform mentally and physically during life. *Gene myopia* is the term that best describes the current all-pervasive view that our health and destiny throughout life are controlled by our genes alone... In contrast to the relative fatalism of gene myopia, understanding the mechanisms that underlie programming by the quality of life in the womb, we can improve the start in life for our children and their children."

The programming "mechanisms" Nathanielsz refers to are the epigenetic mechanisms (discussed earlier in my book), by which environmental stimuli regulate gene activity. As Nathanielsz states, parents can improve the prenatal environment. In so doing, they act as genetic engineers for their children. The idea that parents can transmit hereditary changes from their life to their children is, of course, a Lamarckian concept that conflicts with Darwinism. Nathanielsz is one of the scientists who are now brave enough to invoke the "L" word for Lamarck: "...the transgenerational passage of characteristics by nongenetic means does occur. Lamarck was right, although transgenerational transmission of acquired characteristics occurs by mechanisms that were unknown in his day."

The responsiveness of individuals to the environmental conditions perceived by their mothers before birth allows them to optimise their genetic and physiologic development as they adapt to the environmental forecast. The same life-enhancing epigenetic plasticity of human development can go awry and lead to an array of chronic diseases in older age if an individual experiences adverse nutritional and environmental circumstances during foetal and neonatal periods of development. (Bateson et al., 2004)

The same epigenetic influences also continue after the child is born because parents continue to influence their child's environment. In particular, fascinating new research is emphasising the importance of good parenting in the development of the brain: "For the growing brain of a young child, the social world supplies the most important experiences influencing the expression of genes, which determines how neurons connect to one another in creating the neuronal pathways which give rise to mental activity," writes Dr Daniel J. Siegel in *The Developing Mind*. (Siegel, 1999) In other words, infants need a nurturing environment to activate the genes that develop healthy brains. Parents, the latest science reveals, continue to act as genetic engineers even after the birth of their child.

### Parental Programming: The Power of the Subconscious Mind

I'd like to tell you about how I—who put myself in the category of those who were *not* prepared to have children—came to question my ingrained assumptions about parenting. You won't be surprised to hear that I started my re-evaluation in the Caribbean, the place where my shift to the New Biology took root. My reassessment was actually inspired by an unlucky event: a motor-cycle accident. I was on my way to present a lecture when I went

off a kerb at high speed. The bike wound up upside down. Luckily I was wearing a helmet because I sustained a major blow to my head when the bike hit the ground. I was unconscious for half an hour and for a while my students and colleagues thought I was dead. When I came to, I felt as if I had broken every bone in my body. For the next few days I could hardly walk, and when doing so I resembled a yelping version of Quasimodo. Every step was a painful reminder that "speed kills".

As I creaked out of the classroom one afternoon, one of my students suggested that it might help if I visited his roommate, a fellow student who was also a chiropractor. As I explained in chapter six of my book, I not only had never been to a chiropractor but I had been taught by my allopathic community to shun chiropractors as quacks. But when you're in that much pain and you're in an unfamiliar setting, you wind up trying things you would never consider in your cushier moments.

At the chiropractor's makeshift dormitory "office" I was introduced for the first time to kinesiology, popularly known as "muscle testing". The chiropractor told me to hold out my arm and resist the downward pressure he applied to it. I had no problem resisting the light force he put on my arm. Then he asked me to hold out my arm and resist him again while I said, "My name is Bruce". Again, I had no trouble resisting him, but by now I was starting to think that the admonishments of my academic colleagues were right on the mark: "This is nuts!" Then the chiropractor told me to hold out my arm and resist his pressure while saying earnestly, "My name is Mary". To my amazement, my arm flopped down, despite my strong resistance. "Now wait a minute," I said. "I must not have been resisting enough; try that again." So we did, and this time I concentrated even more forcefully on resisting. Nevertheless, after repeating "My name is Mary", my arm sank like a stone.

This student, who was now my teacher, explained that when your conscious mind has a belief that is in conflict with a formerly learned "truth" stored in the subconscious mind, the

intellectual conflict expresses itself as a weakening of the body's muscles.

To my astonishment, I realised that my conscious mind, which I exercised so confidently in academic settings, was not in control when I voiced an opinion that differed from a truth stored in the unconscious mind. My unconscious mind was undoing the best efforts of my conscious mind to hold up my arm when I claimed my name was Mary. I was amazed to discover that there was another "mind", another force, that was co-piloting my life. More shocking was the fact that this hidden mind, the mind I knew little about (except theoretically in psychology), was actually more powerful than my conscious mind, just as Freud had claimed.

All in all, my first visit to a chiropractor turned out to be a life-changing experience. I learned that chiropractors could tap into the body's innate healing power using kinesiology to target spinal misalignments. I was able to saunter out of that dorm feeling like a new man after a few simple, vertebral adjustments on the

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"quack's" table—all without the use of drugs. And most importantly, I was introduced to the "man behind the curtain", my subconscious mind!

As I left the campus, my conscious mind was awl over the implications of the superior power of my formerly hidden subconscious mind. I also coupled those musings with my study of quantum physics, which taught me that thoughts could propel behaviour more efficiently than physical molecules. My subconscious "knew" that my name was not Mary and balked at my insistence that it was. What else did my subconscious mind "know" and how had it learned it?

To understand better what had happened in that chiropractor's office, I first turned to comparative neuroanatomy—which reveals that the lower an organism is on the tree of evolution, the less developed its nervous system and thus the more it relies on pre-programmed behaviour (nature). Moths fly toward the light, sea turtles return to specific islands and lay their eggs on the beach at the appropriate time, and the swallows return to Capistrano on a specific date, yet, as far as we know, none of these organisms has any knowledge of why they engage in those behaviours. The behaviours are innate; they are genetically built into the organism and are classified as "instincts".

Organisms higher in the tree have more complexly integrated nervous systems headed by bigger and bigger brains that allow them to acquire intricate behavioural patterns through experiential learning (nurture). The complexity of this environmental learning mechanism presumably culminates with humans, who are at the top, or at least near the top, of the tree. To quote anthropologists Emily A. Schultz and Robert H. Lavenda: "Human beings are more dependent on learning for survival than other species. We have no instincts that automatically protect us and find us food and shelter, for example." (Schultz and Lavenda, 1987)

We do have, of course, behavioural instincts that are innate: consider the infant's instinct to suckle, to move his hand quickly away from fire, and to swim automatically when placed in water. Instincts are built-in behaviours that are fundamental to the survival of all humans, independent of what culture they belong to or what time in human history they are born. We are born with the ability to swim. Infants can swim like graceful porpoises moments after they are born, but children quickly acquire a fear of water from their parents.

Observe the response of parents when their unattended child ventures near a pool or other open water. Children learn from their parents that water is dangerous. Parents must later struggle to teach Johnny how to swim. Their first big effort is focused on overcoming the fear of water they instilled in earlier years. But through evolution, our *learned* perceptions have become more powerful, especially because they can override genetically programmed instincts. The body's physiologic mechanisms (e.g., heart rate, blood pressure, blood flow/bleeding patterns, body temperature) are, by their nature, programmed instincts. However, yogis as well as everyday people using biofeedback can *learn* to regulate these "innate" functions consciously.

Scientists have focused on our big brains as the reason for our ability to learn such complex behaviour. However, we should temper our enthusiasm for the big brain theory by considering that

cetaceans (porpoises and dolphins) have greater cerebral surface area packed into their cranium than we do.

The findings of British neurologist Dr John Lorber, highlighted in a 1980 article in *Science* titled "Is Your Brain Really Necessary?", also call into question the notion that the size of the brain is the most important consideration for human intelligence. (Lewin, 1980) Lorber studied many cases of hydrocephalus ("water on the brain") and concluded that even when most of the brain's cerebral cortex (the brain's outer layer) is missing, patients can live normal lives. Science writer Roger Lewin quotes Lorber in his article:

"There's a young student at this university [Sheffield University] who has an IQ of 126, has gained a first-class honours degree in mathematics and is socially completely normal. And yet the boy has virtually no brain... When we did a brain scan on him, we saw that instead of the normal 4.5-centimetre thickness of brain tissue between the ventricles and the cortical surface, there was just a thin layer of mantle measuring a millimetre or so. His cranium is filled mainly with cerebrospinal fluid."

Lorber's provocative findings suggest that we need to reconsider our long-held beliefs about how the brain works and about the physical foundation of human intelligence. I submit in the epilogue of this book that human intelligence can only be fully

understood when we include spirit ("energy"), or what quantum-physics-savvy psychologists call the "superconscious" mind. But for the moment, I'd like to stick to the conscious and subconscious minds—concepts that psychologists and psychiatrists have long grappled with.

I'm grappling with them here to provide the biological foundation for conscious parenting as well as energy-based psychological healing methods.

### Human Programming: When Good Mechanisms Go Bad

Let's go back to the evolutionary challenge for human beings, who have to learn so much so quickly to survive and become a part of their social community. Evolution has endowed our brains with the ability to download rapidly an unimaginable number of behaviours and beliefs into our memory.

Ongoing research suggests that a key to understanding how this rapid downloading of information works is the brain's fluctuating electrical activity as measured by electroencephalograms (EEGs). The literal definition of EEGs is "electric head pictures". These increasingly sophisticated head pictures reveal a graded range of brain activity in human beings. Both adults and children display EEG variations that range from low-frequency delta waves through high-frequency beta waves. However, researchers have noted that EEG activity in children reveals, at every developmental stage, the predominance of a specific brainwave.

Dr Rima Laibow, in *Quantitative EEG and Neurofeedback*, describes the progression of these developmental stages in brain activity. (Laibow, 1999, 2002) Between birth and two years of age, the human brain *predominantly* operates at the lowest EEG frequency, 0.5 to 4 cycles per second (Hz), known as *delta* waves. Though delta is their predominant wave activity, babies can exhibit periodic short bursts of higher EEG activity. A child begins to spend more time at a higher level of EEG activity characterised as *theta* (4–8 Hz) between two and six years of age.

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Hypnotherapists drop their patients' brain activity into delta and theta because these low-frequency brainwaves put their patients into a more suggestible, programmable state.

This gives us an important clue as to how children, whose brains are mostly operating at these same frequencies between birth and six years of age, can download the incredible volume of information they need in order to thrive in their environment. The ability to process this vast quantity of information is an important neurologic adaptation to facilitate this information-intense process of enculturation. Human environments and social mores change so rapidly that it would not be an advantage to transmit cultural behaviours via genetically programmed instincts. Young children carefully observe their environment and download the worldly wisdom offered by parents directly into their subconscious memory. As a result, their parents' behaviour and beliefs become their own.

Researchers at Kyoto University's Primate Research Institute have found that baby chimps also learn by simply observing their mothers. In a series of experiments, a mother was taught to identify the Japanese characters for a variety of colours. When the Japanese character for a specific colour was flashed on a computer screen, the chimp learned to choose the right colour swatch. Upon selecting the right colour, the chimp received a coin that she could then put in a vending machine for a fruit treat. During her training process, she was holding her baby close. To the surprise of researchers, one day, as the mother was retrieving her fruit from the vending machine, the infant chimp activated the computer. When the character appeared on the screen, the baby chimp selected the correct colour, received a coin and then followed his mother to the vending machine. The astonished researchers were left to conclude that infants can pick up complex skills solely by observation and don't have to be actively coached by their parents. (*Science*, 2001)

In humans as well, the fundamental behaviours, beliefs and attitudes we observe in our parents become "hard-wired" as synaptic pathways in our subconscious minds. Once programmed into the subconscious mind, they control our biology for the rest of our lives—unless we can figure out a way to reprogram them. Anyone who doubts the sophistication of this downloading should think about the first time your child blurted out a curse word picked up from you. I'm sure you noted its sophistication, correct pronunciation, its nuanced style and context carrying your signature.

Given the precision of this behaviour-recording system, imagine the consequences of hearing your parents say that you are a "stupid child", you "do not deserve things", you "will never amount to anything", "never should have been born" or are a "sickly, weak" person. When unthinking or uncaring parents pass on those messages to their young children, they are no doubt oblivious to the fact that such comments are downloaded into the subconscious memory as absolute "facts", just as surely as bits and bytes are downloaded to the hard drive of your desktop computer. During early development, the child's consciousness has not evolved enough to assess critically that those parental pronouncements were only verbal barbs and not necessarily true characterisations of "self". Once programmed into the subconscious mind, however,

those verbal abuses become defined as "truths" that unconsciously shape the behaviour and potential of the child through life.

As we get older, we become less susceptible to outside programming with the increasing appearance of higher-frequency *alpha* waves (8–12 Hz). Alpha activity is equated with states of calm consciousness. While most of our sense organs, such as the eyes, ears and nose, observe the outer world, consciousness resembles a sense organ that behaves like a mirror, reflecting the inner workings of the body's own cellular community; it is an awareness of "self".

At around 12 years of age, the child's EEG spectrum begins to show sustained periods of an even higher frequency defined as *beta* waves (12–35 Hz). Beta brain states are characterised as "active or focused consciousness"—the kind of brain activity used in reading this book.

Recently a fifth, higher state of EEG activity has been defined. Referred to as *gamma* waves (greater than 35 Hz), this EEG frequency range kicks in during states of "peak performance", such as when a pilot is in the process of landing a plane or a tennis pro is engaged in a rapid-fire volley.

By the time children reach adolescence, their subconscious minds are chock-full of information that ranges from the knowledge of how to walk to the "knowledge" that they will never amount to anything, or the knowledge, fostered by loving parents, that they can do anything they set out to do.

The sum of our genetically programmed instincts and the beliefs we learned from our parents collectively form the subconscious mind, which can undo both our ability to keep our arm raised in a chiropractor's office and our best New Year's resolutions to stop sabotaging

ourselves with drugs or food.

Again I go back to cells, which can teach us so much about ourselves. I've said many times in my book that single cells are intelligent. But when cells band together in creating multicellular communities, they follow the "collective voice" of the organism, even if that voice dictates self-destructive behaviour. Our physiology and behaviour patterns conform to the "truths" of the central voice, be they constructive or destructive beliefs.

I've described the power of the subconscious mind, but I want to emphasise that there is no need to consider the subconscious a scary, super-powerful, Freudian font of destructive "knowledge". In reality, the subconscious is an emotionless database of stored programs, whose function is strictly concerned with reading environmental signals and engaging in hard-wired behavioural programs—no questions asked, no judgements made.

The subconscious mind is a programmable "hard drive" into which our life experiences are downloaded. The programs are fundamentally hard-wired, stimulus–response behaviours. Behaviour-activating stimuli may be signals the nervous system detects from the external world and/or signals that arise from within the body such as emotions, pleasure and pain. When a stimulus is perceived, it will automatically engage the behavioural response that was learned when the signal was first experienced. In fact, people who realise the automated nature of this playback response frequently admit to the fact that their "buttons have been pushed".

**The subconscious mind is a programmable "hard drive" into which our life experiences are downloaded. The programs are fundamentally hard-wired, stimulus–response behaviours.**

Before the evolution of the conscious mind, the functions of animal brains consisted only of those that we link with the subconscious mind. These more primitive minds were simple, stimulus-response devices that automatically responded to environmental stimuli by engaging genetically programmed instincts or simple, learned behaviours.

Animals do not "consciously" evoke such behaviours, and in fact may even be oblivious to them. Their behaviours are programmed reflexes, like the blink of an eye in response to a puff of air or the kick of a leg after tapping the knee joint.

### The Conscious Mind: The Creator Within

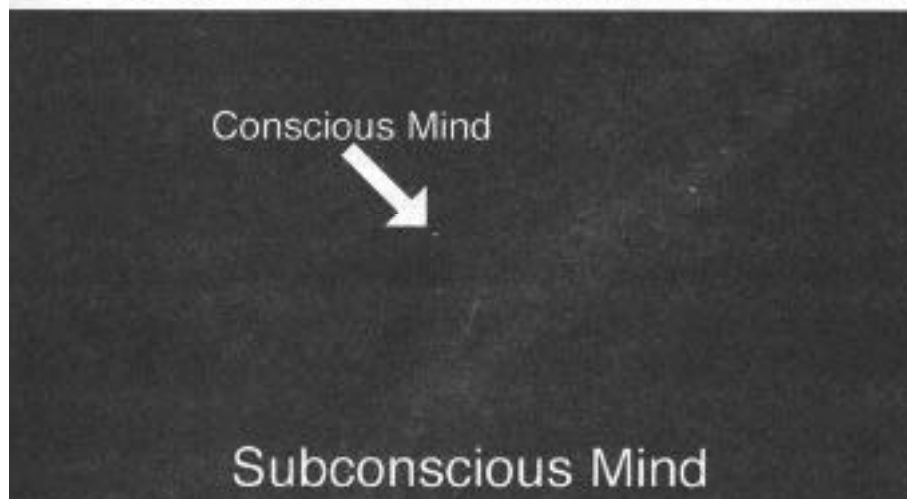
The evolution of higher mammals, including chimps, cetaceans and humans, brought forth a new level of awareness called "self-consciousness" or, simply, the conscious mind. The newer, conscious mind is an important evolutionary advance. The earlier, subconscious mind is our "autopilot"; the conscious mind is our manual control.

For example, if a ball comes near your eye, the slower conscious mind may not have time to be aware of the threatening projectile; yet the subconscious mind, which processes some 20,000,000 environmental stimuli per second versus 40 environmental stimuli interpreted by the conscious mind in the same second, will cause the eye to blink. (Nørretranders, 1998)

The subconscious mind, one of the most powerful information-processors known, specifically observes both the surrounding world and the body's internal awareness, reads the environmental cues and immediately engages previously acquired (learned) behaviours—all without the help, supervision or even awareness of the conscious mind.

The two minds make a dynamic duo. The conscious mind can use its resources to focus on some specific point, such as the party you are going to on Friday night. Simultaneously, your subconscious mind can be safely pushing the lawnmower around and successfully not cutting off your foot or running over the cat, even though you are not consciously paying attention to mowing the lawn.

The two minds also cooperate in acquiring very complex behaviours that can subsequently be unconsciously managed. Remember the first day you excitedly sat in the driver's seat of a car, preparing to learn how to drive? The number of things that had to be dealt with by the conscious mind was staggering. While keeping your eyes on the road, you also had to watch the rear- and side-view mirrors, pay attention to the speedometer and other gauges, use two feet for the three pedals of a standard-shift vehicle, and try to be calm, cool and collected as you drove past observing peers. It took what seemed to be a long time before all these behaviours were "programmed" into your mind.



Visualising the information-processing powers of the conscious and subconscious minds: Consider that the image of Machu Picchu (above, top) is comprised of 20,000,000 pixel dots, each representing a *bit* of information received by the nervous system in one second. How much of that information enters the conscious mind? In the lower picture, the dot represents the total amount of information that is processed by the conscious mind. (Actually, the dot is 10x more than enters consciousness; I had to enlarge it because it was barely visible.) In contrast, the powerful subconscious mind processes all the remaining incoming information (the black area) in the same second.

Today, you get into the car, turn the ignition on and consciously review your shopping list as the subconscious mind dutifully engages all the complex skills you need to navigate successfully through the city—without your even once having to think about the mechanics of driving.

I know I am not the only one out there who has experienced this. You are driving and having a delightful discussion with the passenger sitting next to you. In fact, your consciousness gets so caught up in the conversation that somewhere down the road it dawns on you that you haven't even paid attention to your driving for five minutes. After a momentary start, you realise that you are still on your side of the road and steadily moving along with the flow of traffic. A quick check of the rear-view mirror reveals that you did not leave a wake of crumpled stop signs and smashed mailboxes. If you weren't consciously driving the car during that time, then who was? The subconscious mind! And how well did it do? Although you didn't observe its behaviour, the subconscious mind apparently performed just as well as it was taught during your driver education experience.

In addition to facilitating subconscious habitual programs, the conscious mind also has the power to be spontaneously creative in its responses to environmental stimuli. In its self-reflective capacity, the conscious mind can observe behaviours as they're being carried out. As a preprogrammed behaviour is unfolding, the observing conscious mind can step in, stop the behaviour and create a new response. Thus the conscious mind offers us free will—meaning that we are not just victims of our programming. To pull that off, however, we have to be fully conscious lest the programming take over—a difficult task, as anyone who's tried will-power can attest. Subconscious programming takes over the moment the conscious mind is not paying attention.

The conscious mind can also think forward and backward in time, while the subconscious mind is always operating in the present moment. When the conscious mind is busy daydreaming, creating future plans or reviewing past life-experiences, the subconscious mind is always on duty, efficiently managing the behaviours required at the moment without the need of conscious supervision.

The two minds are truly a phenomenal mechanism, but here is how it can go awry. The conscious mind is the "self", the voice of our own thoughts. It can have great visions and plans for a future filled with love, health, happiness and prosperity. While we focus our consciousness on happy thoughts, who is running the show? The subconscious. How is the subconscious going to manage our affairs? Precisely the way it was programmed. The subconscious mind's behaviours when we are not paying attention may not be of our own creation because most of our fundamental behaviours were downloaded without question from observing other people. Because subconscious-generated behaviours are not generally observed by the conscious mind, many people are stunned to hear that they are "just like" their mum or their dad—the people who programmed their subconscious minds.

The learned behaviours and beliefs acquired from other people, such as parents, peers and teachers, may not support the goals of our conscious mind. The biggest impediments to realising the successes of which we dream are the limitations programmed into the subconscious. These limitations not only influence our behaviour, but they can also play a major role in determining our physiology and health. As we've seen earlier in the book, the mind plays a powerful role in controlling the biological systems that keep us alive.

Nature did not intend that the presence of the dual minds would be our Achilles' heel. In fact, this duality offers a wonderful advantage for our lives. Consider it this way: what if we had conscious parents and teachers who served as wonderful life models, always engaging in humane and win-win relations with everyone in the community? If our subconscious mind were programmed with such healthy behaviours, we could be totally successful in our lives without ever being conscious!

### **The Subconscious Mind: I Keep Calling and No One Answers**

While the "thinking self" nature of the conscious mind evokes images of a "ghost in the machine", there is no similar self-awareness operating in the subconscious mind. The latter

mechanism is more akin to a jukebox loaded with behavioural programs, each ready to play as soon as appropriate environmental signals appear and press the selection buttons. If we don't like a particular song in the jukebox, how much yelling at or arguing with the machine will cause it to reprogram its play list? In my college days, I saw many an inebriated student curse to no avail and kick jukeboxes that were not responsive to their requests. Similarly, we must realise that no amount of yelling or cajoling by the conscious mind can ever change the behavioural "tapes" programmed into the subconscious mind. Once we realise the ineffectiveness of this tactic, we can quit engaging in a pitched battle with the subconscious mind and take a more clinical approach to reprogramming it. Engaging the subconscious in battle is as pointless as kicking the jukebox in the hope that it will reprogram its play list.

The futility of battling with the subconscious is a hard message to get across because one of the programs most of us downloaded when we were young is that "will-power is admirable". So we try over and over again to override the subconscious program. Usually such efforts are met with varying degrees of resistance

because the cells are obligated to adhere to the subconscious program. Tensions between conscious will-power and subconscious programs can result in serious neurological disorders.

For me, a powerful image of why we should not challenge the subconscious comes from the movie *Shine*. In the movie, based on a true story, Australian concert pianist David Helfgott defies his father by going off to London to study music. Helfgott's father, a survivor of the Holocaust, had programmed his son's subconscious mind with the belief

that the world was unsafe, that if he "stood out" it might be life threatening. His father insisted that his son would be safe only if he stayed close to his family. In spite of his father's relentless programming, Helfgott knew that he was a world-class pianist who needed to break from his father to realise his dream.

In London, Helfgott played the notoriously difficult *Third Piano Concerto* of Rachmaninoff in a competition. The film shows the conflict between his conscious mind wanting success and his subconscious mind concerned that being visible, being internationally recognised, was life-threatening. As he labours through the concerto, sweat pouring from his brow, Helfgott's conscious mind fights to stay in control while his subconscious mind, fearful of winning, tries to take control of his body. Helfgott consciously forces himself to maintain control through the concerto until he plays the last note. He then passes out, overcome by the energy it took to battle his subconscious programming. For that "victory" over the subconscious, he pays a high price: when he comes to, he is insane.

Most of us engage in less-dramatic battles with our subconscious mind as we try to undo the programming we received as children. Witness our ability continually to seek out jobs that we fail at or remain in jobs we hate because we don't "deserve" a better life.

Conventional methods for suppressing destructive behaviours include drugs and talk therapy. Newer approaches promise to change our programming, recognising that there is no use "reasoning" with the subconscious tape player. These methods

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capitalise on the findings of quantum physics that connect energy and thought. In fact, these modalities that reprogram previously learned behaviours can be collectively referred to as "energy psychology"—a burgeoning field based on the New Biology.

But how much easier it would be to be nurtured from the beginning of life so that we can reach our genetic and creative potential. How much better to become a conscious parent so that our children and their children will be conscious parents, making reprogramming unnecessary and making for a happier, more peaceful planet!

### **A Twinkle In Your Parents' Eyes: Conscious Conception and Conscious Pregnancy**

You all know the expression, "When you were only a twinkle in your parents' eyes"—a phrase that conjures up the happiness of loving parents who truly want to conceive a child. It turns out it is also a phrase that sums up the latest genetic research suggesting that parents should cultivate that twinkle in the months before they conceive a child. That growth-promoting awareness and intention can produce a smarter, healthier and happier baby.

Research reveals that parents act as genetic engineers for their children in the months before conception. In the final stages of egg and sperm maturation, a process called "genomic imprinting" adjusts the activity of specific groups of genes that will shape the character of the child yet to be conceived. (Surani, 2001; Reik and Walter, 2001)

Research suggests that what is going on in the lives of the parents during the process of genomic imprinting has a profound influence on the mind and body of their child—a scary thought, given how unprepared most people are to have a baby. Verny writes in *Pre-Parenting: Nurturing Your Child from Conception*: "It makes a difference whether we are conceived in love, haste or hate, and whether a mother wants to be pregnant...parents do better when they live in a calm and stable environment, free of addictions and supported by family and friends." (Verny, 2002) Interestingly, aboriginal cultures have recognised the influence of the conception environment for millennia. Prior to conceiving a child, couples ceremonially purify their minds and bodies.

An impressive body of research is documenting how important parents' attitudes are in the development of the foetus, once the child is conceived. Again Verny writes: "In fact, the great weight of the scientific evidence that has emerged over the last decade demands that we re-evaluate the mental and emotional abilities of unborn children. Awake or asleep, the studies show, they [unborn children] are constantly tuned in to their mother's every action, thought and feeling. From the moment of conception, the experience in the womb shapes the brain and lays the groundwork for personality, emotional temperament, and the power of higher thought."

Now is the time to stress that the New Biology is *not* a return to the old days of blaming mothers for every ailment that medicine didn't understand, from schizophrenia to autism.

Mothers and fathers are in the conception and pregnancy business together, even though it is the mother who carries the child in her womb. What the father does profoundly affects the mother, which in turn affects the developing child. For example, if the father leaves and the mother starts questioning her own ability to survive, his leaving profoundly changes the interaction between the mother and the unborn baby. Similarly, societal factors, such as lack of employment, housing and healthcare or endless wars that pull fathers into the military, can affect the parents and thus the developing child. The essence of conscious parenting is that both mothers and fathers have important responsibilities for fostering healthy, intelligent, productive and joy-filled children. We surely cannot blame ourselves nor our parents for failures in our own or our children's lives. Science has kept our attention focused on the notion of genetic determinism, leaving us ignorant about the influence beliefs have on our lives and, more importantly, how our behaviours and attitudes program the lives of our children.

Most obstetricians are also still uneducated about the importance of parental attitudes in the development of the baby. According to the notion of genetic determinism that they were steeped in as medical students, foetal development is mechanically controlled by genes, with little additional contribution from the mother. Consequently, ob-gyns are only concerned with a few maternal prenatal issues: Is she eating well? Taking vitamins? Does she exercise regularly? Those questions focus on what they believe is the mother's principal role: the provision of nutrients to be used by the genetically programmed foetus. But the developing child receives far more than nutrients from the mother's blood. Along with nutrients, the foetus absorbs excess glucose if the mother is diabetic, and excess cortisol and other fight or flight hormones if the mother is chronically stressed. Research now offers insights into how the system works. If a mother

is under stress, she activates her HPA [Hypothalamic-Pituitary-Adrenal] axis, which provides fight or flight responses in a threatening environment.

Stress hormones prepare the body to engage in a protection response. Once these maternal signals enter the foetal bloodstream, they affect the same target tissues and organs in the foetus as they did in the mother. In stressful environments, foetal blood preferentially flows to the muscles and hindbrain, providing nutritional requirements needed by the arms and legs and by the region of the brain responsible for life-saving reflex behaviour. In supporting the function of the protection-related systems, blood flow is shunted from the viscera organs and stress hormones suppress forebrain function. The development of foetal tissue and organs is proportional to both the amount of blood they receive and the function they provide.

When passing through the placenta, the hormones of a mother experiencing chronic stress will profoundly alter the distribution of blood flow in her foetus and change the character of her developing child's physiology. (Lesage et al., 2004; Christensen, 2000; Arnsten, 1998; Leutwyler, 1998; Sapolsky, 1997; Sandman et al., 1994)

**Parents act as genetic engineers for their children in the months before conception.**

**In the final stages of egg and sperm maturation, a process called "genomic imprinting" adjusts the activity of specific groups of genes that will shape the character of the child yet to be conceived.**

At the University of Melbourne, E. Marilyn Wintour's research on pregnant sheep, which physiologically are quite similar to humans, has found that prenatal exposure to cortisol eventually leads to high blood pressure. (Dodic et al., 2002) Foetal cortisol levels play a very important regulatory role in the development of the kidneys' filtering units, the nephrons. A nephron's cells are intimately involved with regulating the body's salt balance and consequently are important in controlling blood pressure. Excess cortisol absorbed from a stressed mother modifies foetal nephron formation. An additional effect of excess cortisol is that it simultaneously switches the mother's and the foetus's system from a growth state to a protection posture. As a result, the growth-inhibiting effect of excess cortisol in the womb causes the baby to be born smaller.

Suboptimal conditions in the womb that lead to low-birthweight babies have been linked to a number of adult ailments that Nathanielsz outlines in his book *Life In The Womb*, including diabetes, heart disease and obesity. (Nathanielsz, 1999) For example, Dr David Barker (ibid.) of England's University of Southampton has found that a male who weighs less than 5.5 pounds at birth has a 50 per cent greater chance of dying of heart disease than one with a higher birthweight.

Harvard researchers have found that women who weigh less than 5.5 pounds at birth have a 23 per cent higher risk of cardiovascular disease than women born heavier. And David Leon (ibid.) of the London School of Hygiene and Tropical Medicine has found that diabetes is three times more common in 60-year-old men who were small and thin at birth.

The new focus on the influences of the prenatal environment extends to the study of IQ, which genetic determinists and racists once linked simply to genes. But in 1997, Bernie Devlin, a professor of psychiatry at the University of Pittsburgh School of Medicine, carefully analysed 212 earlier studies that compared the IQs of twins, siblings, and parents and their children. He concluded that genes account for only 48 per cent of the factors that determine IQ. And when the synergistic effects of mingling the mother's and father's genes are factored in, the true inherited component of intelligence plummets even further, to 34 per cent. (Devlin et al., 1997; McGue, 1997) Devlin, on the other hand, found that conditions during prenatal development significantly impact IQ. He reveals that up to 51 per cent of a child's potential intelligence is controlled by environmental factors. Previous studies had already found that drinking or smoking during pregnancy can cause decreased IQ in children, as can exposure to lead in the womb. The lesson for people who want to be parents is that you can radically short-change the intelligence of your child simply by the way you approach pregnancy. These IQ changes are not accidents: they are directly linked to altered blood flow in a stressed brain.

In my lectures on conscious parenting, I cite research but I also show a video from an Italian conscious parenting organisation, Associazione Nazionale Educazione Prenatale, which graphically

illustrates the interdependent relationship between parents and their unborn child. In this video, a mother and father engage in a loud argument while the woman is undergoing a sonogram. You can vividly see the foetus jump when the argument starts. The startled foetus arches its body and jumps up as if it were on a trampoline when the argument is punctuated with the shattering of glass. The power of modern technology, in the form of a sonogram, helps to lay to rest the myth that the unborn child is not a sophisticated enough organism to react to anything other than its nutritional environment.

### Nature's Head Start Program

You may be wondering why evolution would provide such a system for foetal development that seems so fraught with peril and is so dependent on the environment of the parents. Actually, it's an ingenious system that helps ensure the survival of your offspring. Eventually, the child is going to find itself in the same environment as its parents. Information acquired from the parents' perception of their environment transmits the placenta and primes the pre-nate's physiology, preparing it to deal more effectively with future exigencies that will be encountered after birth. Nature is simply preparing that child to best survive in that environment. However, armed with the latest science, parents now have a choice. They can carefully reprogram their limiting beliefs about life before they bring a child into their world.

The importance of parental programming undermines the notion that our traits, both positive and negative, are fully determined by our genes. As we have seen, genes are shaped, guided and tailored by environmental learning experiences.

We have all been led to believe that artistic, athletic and intellectual prowess are traits simply passed on by genes. But no matter how "good" one's genes may be, if an individual's nurture

experiences are fraught with abuse, neglect or misperceptions then the realisation of the genes' potentials will be sabotaged.

For example, performer Liza Minnelli acquired her genes from her superstar mother Judy Garland and her filmmaker father Vincente Minnelli. Liza's career, the heights of her stardom and the lows of her personal life are scripts that were played out by her parents and downloaded into her subconscious mind. If Liza had the same genes but was raised by a nurturing Pennsylvania Dutch farming family, that environment would have epigenetically triggered a different selection of genes. The genes that enabled her to pursue a successful entertainment career would have likely been masked or inhibited by the cultural demands of her agrarian community.

A wonderful example of the effectiveness of conscious parenting programming is superstar golfer Tiger Woods. Although his father was not an accomplished golfer, he made every effort to immerse Tiger in an environment that was rich with opportunities to develop and enhance the mindset, skills, attitudes and focus of a master golfer. No doubt, Tiger's success is also intimately connected with the Buddhist philosophy that his mother contributed.

**The lesson for people who want to be parents is that you can radically short-change the intelligence of your child simply by the way you approach pregnancy.**

**These IQ changes are not accidents: they are directly linked to altered blood flow in a stressed brain.**



Indeed, genes are important—but their importance is only realised through the influence of conscious parenting and the richness of opportunities provided by the environment.

### Conscious Mothering and Fathering

I used to close my public lectures with the admonition that we are personally responsible for everything in our lives. Such a closure did not make me popular with the audiences. That responsibility was too much for many people to accept. After one lecture, an older woman in the audience was so distressed by my conclusion that she brought her husband backstage and, in tears, vehemently contested my conclusion. She did not want any part of some of the tragedies she had experienced. This woman convinced me that my summary conclusion had to be modified. I realised that I didn't want to contribute to foisting blame and guilt on any individual. As a society, we are too apt to wallow in guilt or scapegoat others for our problems. As we gain insights over a lifetime, we become better equipped to take charge of our lives. After some deliberation, this woman from the audience happily accepted the following resolution: you are personally responsible for everything in your life, *once you become aware* that you are personally responsible for everything in your life. One cannot be "guilty" of being a poor parent unless one is already aware of the above-described information and disregards it. Once you become aware of this information, you can begin to apply it to reprogram your behaviour.

And while we're on the subject of myths about parenting, it is absolutely not true that you are the same parent for all of your children. Your second child is not a clone of the first child. The same things are not happening in your world that happened when the first

child was born. I once thought that I was the same parent for my first child as I was for my very different second child. But when I analysed my parenting, I found that was not true. When my first child was born, I was at the beginning of my graduate school training, which was for me a difficult transition fraught with a high workload accompanied by high insecurity. By the time my second daughter was born, I was a more confident, more accomplished research scientist ready to start my academic career. I had more time and more psychic energy to parent my second child and to better parent my first daughter, who was by then a toddler.

Another myth I'd like to address is that infants need lots of stimulation in the form of black-and-white flash cards or other learning tools marketed to parents to increase the intelligence of their children. Michael Mendizza and Joseph Chilton Pearce's inspiring book *Magical Parent, Magical Child* makes it clear that *play*, not programming, is the key to optimising the learning and performance of infants and children. (Mendizza and Pearce, 2001) Children need parents who can playfully foster the curiosity, creativity and wonder accompanying their children into the world.

Obviously, what humans need is nurture in the form of love and the ability to observe older humans going about their everyday lives. When babies in orphanages, for example, are kept in cribs and only provided with food but not one-on-one smiles and hugs, they develop long-lasting developmental problems. One study of Romanian orphans by Mary Carlson, a neurobiologist at Harvard Medical School, concluded that the lack of touching and attention

in Romanian orphanages and poor-quality day-care centres stunted the children's growth and adversely affected their behaviour. Carlson, who studied 60 Romanian children from a few months to three years of age, measured their cortisol levels by analysing samples of saliva. The more stressed a child was, as determined by the higher-than-normal levels of cortisol in its blood, the poorer the outcome for the child. (Holden, 1996)

Carlson and others have also done research on monkeys and rats, demonstrating crucial links between touch, the secretion of the stress hormone cortisol and social development. Studies by James W. Prescott, former director of the National Institutes of Health's Human Health and Child Development section, revealed that newborn monkeys deprived of physical contact with their mothers or social contact with others, developed abnormal stress profiles and became violent sociopaths. (Prescott, 1990)

Prescott followed up these studies with an assessment of human cultures based on how they raise their children. He found that if a society physically held and loved its children and did not repress sexuality, that culture was peaceful. Peaceful cultures feature parents who maintain extensive physical contact with their children,

such as carrying their baby on their chest or back throughout the day. In contrast, societies that deprive their infants, children and adolescents of extensive touch are inevitably violent in nature. One of the differences between populations is that many of the children not receiving touch suffer from somatosensory affective disorder. This disorder is characterised by an inability to physiologically suppress surging levels of stress hormones, a precursor to violent episodes. (Prescott, 1990, 1996)

These findings provide insights into the violence that pervades the United

States. Rather than endorsing physical closeness, our current medical and psychological practices often discourage it. From the unnatural intervention of medical doctors in the natural process of birthing, for example, separating the neonate for extensive periods from the parents into distant nurseries, to advising parents not to respond to their baby's cries for fear of spoiling them...such practices, presumably based upon "science", undoubtedly contribute to the violence in our civilisation. The research regarding touch—or lack of it—and its relationship to violence is described in full at the website <http://www.violence.de>.

But what about the Romanian children who came out of deprived backgrounds and became what one researcher called "the resilient wonders"? Why do some children thrive despite their backgrounds? Because they have "better" genes? By now, you know that I don't believe that. More likely, the birth parents of these resilient wonders provided a more nurturing prenatal and perinatal environment as well as good nutrition at crucial points in the child's development.

The lesson for adoptive parents is that they should not pretend their children's lives began when they came into their new surroundings. Their children may already have been programmed by their birth parents with a belief that they are unwanted or unlovable. If more fortunate, they may have received, at some crucial stage in their development, positive, life-affirming messages from their caretakers. If adoptive parents are not aware of pre- and perinatal programming, they may not be able to deal realistically with post-adoption issues. They may not realise that

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their children did not come to them as a "blank slate", any more than newborns come into the world as blank slates unaffected by their nine months in their mother's womb. Better to recognise that programming and to work, if necessary, to change it.

For adoptive and non-adoptive parents alike, the message is clear: your children's genes reflect only their potential, not their destiny. It is up to you to provide the environment that allows children to develop to their highest potential.

Notice I do not say that it is up to parents to read lots of parenting books. I've met many people who are intellectually attracted to the ideas I present in this book. But intellectual interest is not enough. I tried that myself. I was intellectually aware of everything in this book, but, before I made the effort to change, this made no impact on my life. If you simply read this book and think that your life and your children's lives will change, you're doing the equivalent of accepting the latest pharmaceutical pill thinking it will "fix" everything. No one is fixed until they make the effort to change.

Here is my challenge to you. Let go of unfounded fears and take care not to implant unnecessary fears and limiting beliefs in your children's subconscious minds. Most of all, do not accept the fatalistic message of genetic determinism. You can help your children reach their potential and you can change your personal life. You are not "stuck" with your genes.

Take heed of the growth and protection lessons from cells and shift your lives into growth whenever possible. And remember that, for human beings, the most potent growth-promoter is not the fanciest school, the biggest toy or the highest-paying job. Long before cell biology and studies of children in orphanages,

conscious parents and seers like Rumi knew that for human babies and adults, the best growth promoter is *love*.

*A lifetime without Love is of no account  
Love is the Water of Life  
Drink it down with heart and soul.*

#### **Editor's Note:**

This article is excerpted from chapter seven of Dr Bruce Lipton's bestselling book *The Biology of Belief: Unleashing the Power of Consciousness, Matter and Miracles*, published by Mountain of Love Productions/Elite Books in May 2005 (see review in NEXUS 12/04). The book is distributed by Midpoint Trade, website <http://www.midpointtrade.com>. Australian and NZ readers should note that Bruce Lipton is touring Down Under in late March/early April. See advert this issue, or phone +61 (0)3 9844 5379.

#### **About the Author:**

Bruce Lipton, PhD, is an internationally recognised authority on bridging science and spirit. A cell biologist by training, he taught cell biology at the University of Wisconsin's School of Medicine and later performed pioneering studies at Stanford University's School of Medicine. He has been a guest speaker on dozens of TV and radio shows, as well as a keynote presenter for national conferences. His breakthrough studies on the cell membrane presaged the new science of Epigenetics and have made him a leading voice of the New Biology.

For more details about Dr Lipton and his research and to contact him, visit his website <http://www.brucelipton.com>.

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